

Dimension

Ethernet Switch Modules

User's Guide

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FCC Interference Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operations.

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning:

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Taiwanese BSMI (Bureau of Standards, Metrology and Inspection) A Warning:

警告使用者
這是甲類的資訊產品，在居住的環境使用時，
可能造成射頻干擾，在這種情況下，
使用者會被要求採取某些適當的對策。

Certifications

Refer to the product page at www.zyxel.com.

ZyXEL Limited Warranty

ZyXEL warrants to the original end user (purchaser) that this product is free from any defects in materials or workmanship for a period of up to two years from the date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, ZyXEL will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal value, and will be solely at the discretion of ZyXEL. This warranty shall not apply if the product is modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. ZyXEL shall in no event be held liable for indirect or consequential damages of any kind of character to the purchaser.

To obtain the services of this warranty, contact ZyXEL's Service Center for your Return Material Authorization number (RMA). Products must be returned Postage Prepaid. It is recommended that the unit be insured when shipped. Any returned products without proof of purchase or those with an out-dated warranty will be repaired or replaced (at the discretion of ZyXEL) and the customer will be billed for parts and labor. All repaired or replaced products will be shipped by ZyXEL to the corresponding return address, Postage Paid. This warranty gives you specific legal rights, and you may also have other rights that vary from country to country.

Safety Warnings

1. Do not use this product near water, for example, in a wet basement or near a swimming pool.
2. Avoid using this product during a thunderstorm. There may be a risk of electric shock from lightning.

Customer Support

Please have the following information ready when you contact customer support.

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

METHOD	E-MAIL SUPPORT/SALES	TELEPHONE/FAX	WEB SITE/ FTP SITE	REGULAR MAIL
LOCATION				
WORLDWIDE	support@zyxel.com.tw sales@zyxel.com.tw	+886-3-578-3942 +886-3-578-2439	www.zyxel.com www.europe.zyxel.com ftp.europe.zyxel.com	ZyXEL Communications Corp., 6 Innovation Road II, Science- Based Industrial Park, Hsinchu 300, Taiwan.
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Preface

Congratulations on your purchase of a Dimension Ethernet Switch module.

The Ethernet switch modules discussed in this user's guide are for Dimension ES-3024 Ethernet switches unless otherwise specified.

The switch modules are designed to provide your network with Ethernet, Fast Ethernet and/or Gigabit Ethernet connectivity over twisted pair and fiber optic cabling. The expansion slots on the Dimension Ethernet switch further add to the flexibility of your network systems.

General Syntax Conventions

For brevity's sake, we will use "e.g." as shorthand for "for instance", and "i.e." as shorthand for "that is" or "in other words" throughout this manual.

The Dimension ES-3024 Ethernet Switch will be referred to as the ES-3024, ES switch, or simply as the switch in this manual.

Related Documentation

Dimension ES-3024 Ethernet – Ethernet Switch User's Guide

The user's guide covers all aspects of the ES switch operations and shows you how to get the best out of the multiple advanced features of the ES switch using the embedded web-based configurator. It is designed to guide you through the correct configuration of your ES switch for various applications.

ZyXEL Web Site

The ZyXEL download library at www.zyxel.com contains additional support documentation and an online glossary of networking terms.

Ethernet Switch Modules

Introduction

With the ES-3024's expansion slots, you can install modules to optimize your network's performance while reducing cost and complexity.

Choose from the following modules.

- 1-port 100 Base-FX Fiber Multi-Mode module
- 1-port Gigabit 1000 Base-T module
- 1-port Gigabit 1000 Base-SX Fiber module
- GBIC (Gigabit Interface Converter) 3.3V module
- Stacking module (for both ES-3024 and ES-4024 Ethernet switches)

The following sections provide a brief description of each module.

EM3024-FX-SC: 100 Base-FX Multi-Mode Module

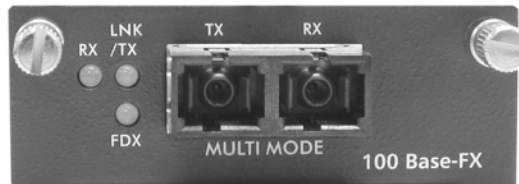


Diagram 1 EM3024-FX-SC: 100 Base-FX: Front Panel

Features

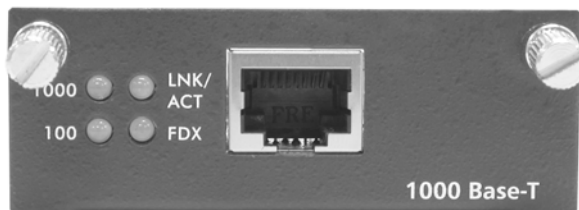
- One 100Mbps fiber port (SC multi-mode connectors).
- Supports full-duplex mode.
- Allows connection distance of up to 2 kilometers via fiber optic cable.

Front Panel LEDs

The following table describes the LEDs on the front panel.

Table 1 EM3024-FX-SC: 100 Base-FX Fiber Module LED Description

LED	COLOR	STATUS	DESCRIPTION
LNK/TX	Green	On	The port is connected to an Ethernet device.
		Blinking	The port is transmitting data.
		Off	The port is not connected to an Ethernet device.
RX	Green	Blinking	The port is receiving data.
		Off	The port is not receiving data.
FDX	Amber	On	The port is operating in full-duplex mode.

EM3024-GTP: Gigabit 1000 Base-T Module**Diagram 2 EM3024-GTP: Gigabit 1000 Base-T: Front Panel****Features**

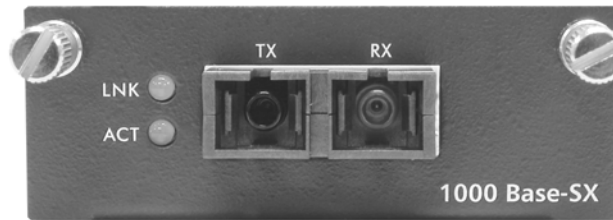
- One 100/1000Mbps N-Way auto-negotiation RJ-45 port.
- Supports auto MDI/MDIX (auto-crossover).
- Supports half-duplex (at 100 Mbps only) and full-duplex modes.
- Back-Pressure flow control in half-duplex mode (at 100 Mbps only).
- Pause-Frame flow control in full-duplex mode.

Front Panel LEDs

The following table describes the LEDs on the front panel.

Table 2 EM3024-GTP: Gigabit 1000 Base-T Module LED Description

LED	COLOR	STATUS	DESCRIPTION
1000	Green	On Blinking Off	An Ethernet device is connected at 1000 Mbps. The port is receiving or transmitting data. The port is not connected to an Ethernet device.
100	Green	On Blinking Off	An Ethernet device is connected at 100 Mbps. The port is receiving or transmitting data. The port is not connected to an Ethernet device.
LNK/ACT	Green	On Blinking Off	The port is connected to an Ethernet device. The port is receiving or transmitting data. The port is not connected to an Ethernet device.
FDX	Amber	On Blinking Off	The port is operating in full-duplex mode. Collisions occurred on this port. The port is operating in half-duplex mode.

EM3024-SX-SC: Gigabit 1000 Base-SX Fiber Module**Diagram 3 EM3024-SX-SC: Gigabit 1000 Base-SX: Front Panel****Features**

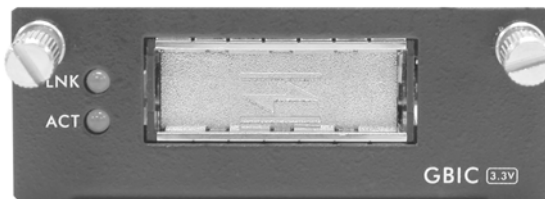
- One 1000Mbps fiber port (SC multi-mode connectors).
- Supports full-duplex mode.
- Allows connection distance of up to 220 meters (using 62.5/125µm Multi-mode fiber) and up to 500 meters (using 50/125µm Multi-mode fiber) via fiber optic cable.

Front Panel LEDs

The following table describes the LEDs on the front panel.

Table 3 EM3024-SX-SC: Gigabit 1000 Base Fiber Module LED Description

LED	COLOR	STATUS	DESCRIPTION
LNK	Green	On	The port is connected to an Ethernet device.
		Off	The port is not connected to an Ethernet device.
ACT	Green	Blinking	The port is transmitting or receiving data.
		Off	The port is not transmitting and receiving data.

EM3024-GBIC: GBIC (Gigabit Interface Converter) 3.3V Module**Diagram 4 EM3024-GBIC: GBIC: Front Panel**

The GBIC 3.3V module features one slot for a GBIC transceiver.

Front Panel LEDs

The following table describes the LEDs on the front panel.

Table 4 GBIC Module LED Description

LED	COLOR	STATUS	DESCRIPTION
LNK	Green	On	The port is connected to an Ethernet device.
		Off	The port is not connected to an Ethernet device.
ACT	Green	Blinking	The port is transmitting or receiving data.
		Off	The port is not transmitting and receiving data.

EM3024-S: Stacking Module (for both ES-3024 and ES-4024 Ethernet switches)**Diagram 5 EM3024-S: Stacking Module: Front Panel****Features**

- Two 1000Mbps RJ-45 ports.
- Supports auto MDI/MDIX (auto-crossover).
- Pause-Frame flow control in full-duplex mode.

Refer to the ES-3024/ ES-4024 user's guide for information on port and LED descriptions and cable connection examples.

Installing a Module

Follow these steps to install a module.

Modules are NOT hot swappable!

- Step 1.** Turn off your switch and unplug the power cord from the switch.
- Step 2.** Loosen the screws from the cover plate and remove the cover plate from an expansion slot. Do not discard the cover plate. You can put the cover plate back on if you remove the new module.



Diagram 6 Loosening the Screws and Removing the Cover Plate

Before you continue, wear an anti-static wrist strap or touch any grounded or metal objects to discharge any bodily static electricity.

- Step 3.** Remove the module from its protective anti-static packaging, holding the module by its edges to avoid touching the onboard circuit components.
- Step 4.** Insert the module into an available expansion slot on the switch. Press it firmly until the module snaps into place.
- Step 5.** Secure it to the switch with the retaining screws.

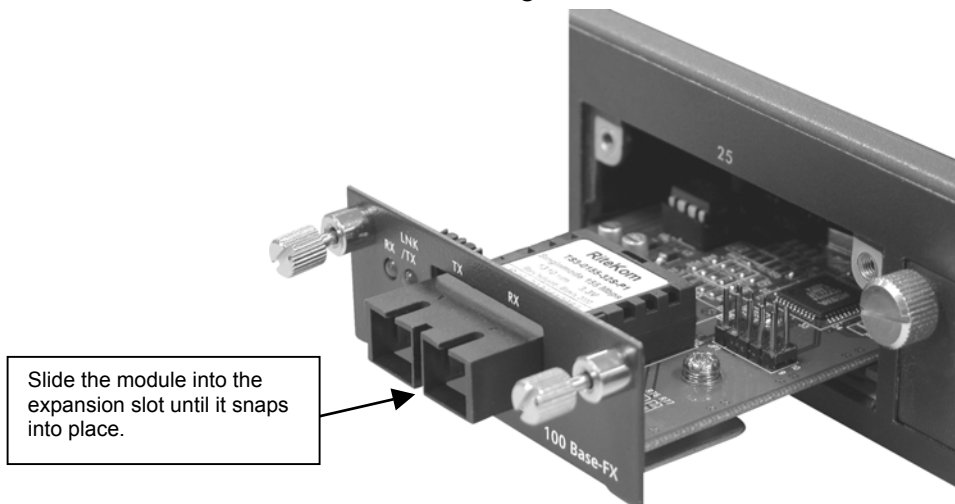


Diagram 7 Inserting An Example Module¹

Never force, bend or twist the modules into the expansion slots.

- Step 6.** Turn on the switch. The switch automatically detects the installed module. Connect any necessary network cables to the module and check the LEDs to verify that it is functioning properly.

¹ This is an example module only!